

10/523,320

In the Claims:

Please add new claims 9 and 10 and amend claims 5 and 8 as follows in which the claim additions are shown by underlining and/or the claim deletions are shown by strikeout or brackets. Please enter the new and amended claims into the record of this case.

[014] In the arrangement of the distance sensor, according to the invention, a simple adjustment and setting of the service brake to the inching function is possible. For this purpose, the vehicle is moved on an almost horizontal terrain. The adjusting process is started and preferably a display prompts the operator to perform further actions. After the driving motor speed has been adjusted to a defined value, preferably the maximum rotational speed and the service brake has been actuated, the process is started. By slowly releasing the service brake, the vehicle is set in motion. During this adjusting process, the clutch force remains constantly adjusted within the inch effect 0% to 100%. By pushing the inch pedal further down, the service brake is activated and, hence, the vehicle is slowed down. By measuring the vehicle motion, the braking time is known from the pedal path of the inch pedal and is stored in the electronic control unit. The maximum inch effect, 100%, at which the disks of the friction brake just come into contact and which corresponds to a minimal actuating force of the clutch, is stored in the electronic control unit as a function of the pedal path and can then be determined as described for example in WO 01/65227 A1 or in DE 198 26 097 A1. Since now the electronic control unit has information about the minimal actuating force of the friction force and, hence, about the point 100% inch effect with the corresponding inch pedal position; the inch pedal position at which the service brake is activated, the service brake can now be programmed and thus set, by establishing the characteristic lines of the intersecting points of the inch[[,]] pressure with the braking pressure.

[023] Fig. 1 shows the course of an inch process across the pedal path of the inch pedal; and

Fig. 2 is a diagrammatic drawing showing the various components included in the mobile vehicle.

[024] The diagrams is are shown for a hydraulically actuated multi-disk clutch 1a and a hydraulically actuated service brake 2a for a shiftable transmission 3a in a mobile vehicle 4a. The multi-disk clutch 1a and the service brake 2a are actuated by way of a hydraulic pressure in the engaging sense. The pressure for the hydraulic clutch 1a and the hydraulic brake 2a is illustrated on the ordinate, the pedal path of ~~[[the]]~~ an inch pedal 5a on the abscissa. When the inch pedal 5a is in its starting position 1, maximum pressure is applied to the friction clutch 1a and hence it is engaged, which can be seen on line 2. The inch pedal 5a is pushed down to an inching starting point 3 without changing the clutch pressure. When the inch pedal 5a is pushed down further than the inching starting point 3, the clutch pressure is lowered continuously to an inching start 4. The inching start 4 clutch pressure has been previously defined and is dependent upon the power of the clutch 1a at which the vehicle can be operated with a slipping clutch 1a over an extended period of time without damaging the clutch 1a. When pushing the inch pedal 5a down further, the clutch pressure of the friction clutch 1a decreases further until it has reached a minimal clutch pressure 5 at which the disks of the clutch 1a just come into contact. Said clutch pressure can no longer be reduced further by the inch pedal 5a. If now the inch pedal 5a is moved back in the opposite direction, i.e., in the direction of the starting position 1, then the clutch pressure is immediately raised by a defined value, thus maintaining the clutch actuating force, but causing the actuating device to actuate the clutch 1a immediately in an engaging sense when increasing the clutch force further due to a movement of the inch pedal 1a in the direction of the starting position since the hysteresis is compensated by the use of an engaging characteristic line 7 due to the actuation of the components. By means of inching in the engaging sense on the engaging characteristic line 7 and in the disengaging sense on a disengaging characteristic line 6, the hysteresis of the components is eliminated, thus passing on immediate responsive behavior of the inch function to the driver. Erroneous operation by the driver, due to an inch pedal 5a that has been pushed down or released too far, therefore, is eliminated. When the inch pedal 5a reaches a motion point 8,

the service brake 2a is also activated, which can be seen from line 9. When the engaging characteristic line 7 reaches a point 10, which is, likewise, defined such that the friction clutch 1a is not damaged during extended operation and the inch pedal 5a is moved further in the direction of the starting position 1, the clutch pressure is increased continuously up to the maximum clutch pressure thus completely engaging the clutch 1a. When the clutch 1a is operated for an impermissibly long time in a slipping state, the clutch 1a is automatically actuated in the disengaging sense. The inch pedal 5a must be pushed down further to start the inch process than when leaving the inch process. The difference between the inching starting point 3 and an inching end point 11 causes a brief erroneous operation of the gas pedal to have no negative effect when driving on uneven terrain. Through the electronic adjustment of ~~[[the]]~~ a distance sensor 7a and the detection of a starting point 12 of the service brake 2a, it is possible to adjust the inch function as desired with the characteristic line of the service brake 9 in ~~[[the]]~~ an electronic control system 6a, thus activating the service brake 2a earlier or later, depending on the programming.

1-4. (CANCELED)

5. (CURRENTLY AMENDED) A mobile vehicle comprising:

a shiftable transmission with fixed gear ratio steps, which contains a friction clutch that can be engaged by an actuating force,

an inch pedal, a pedal path of which is detected by a distance sensor, and supplied to an electronic control unit, upon actuation of the inch pedal, the electronic control unit lowers the actuating force of the friction clutch as a function of the pedal path and then brings the friction clutch into a slipping state, ~~the pedal path of the inch pedal is located within a motion path of the distance sensor, and~~

a starting position and an end position of the inch pedal are detected by the electronic control device, and allocated to an inch characteristic line, wherein:

at vehicle start-up the starting position and the end position of the inch pedal are allocated in the electronic control unit to the characteristic line of a 0% and 100% inch effect to eliminate mechanical adjustment of the distance sensor electronically.

6. (PREVIOUSLY PRESENTED) The mobile vehicle comprising a shiftable transmission according to claim 5, wherein the inch characteristic line has an inch effect of 0% to 100%.

7. (PREVIOUSLY PRESENTED) The mobile vehicle comprising a shiftable transmission according to claim 5, wherein an intersecting point of the inch characteristic line to a service brake characteristic line can be adjusted.

8. (CURRENTLY AMENDED) The mobile vehicle comprising a shiftable transmission according to claim 5, wherein the electronic control unit detects the inch pedal path, at which a service brake is activated, by ~~means of which the vehicle is delayed,~~ a braking time is determined ~~recognized~~ by measuring a motion change of the vehicle, and stored in the electronic control unit.

9. (NEW) The mobile vehicle comprising a shiftable transmission according to claim 5, wherein the pedal path of the inch pedal is located within a motion path of the distance sensor.

10. (NEW) A mobile vehicle comprising:

a shiftable transmission with fixed gear ratio steps, which contains a friction clutch that can be engaged by an actuating force,

an inch pedal, a pedal path of which is detected by a distance sensor, and supplied to an electronic control unit, upon actuation of the inch pedal, the electronic control unit lowers the actuating force of the friction clutch as a function of the pedal path and then brings the friction clutch into a slipping state,

a starting position and an end position of the inch pedal are detected by the electronic control device, and allocated to an inch characteristic line,

at vehicle start-up the starting position and the end position of the inch pedal are allocated in the electronic control unit to the characteristic line of a 0% and 100% inch effect to eliminate mechanical adjustment of the distance sensor; and

wherein the electronic control unit determines the function of the pedal path at which a service brake is activated and the vehicle is braked, a braking time is determined by measuring a motion change of the vehicle and stored in the electronic control unit.